

ABSTRACT OF THE DISCLOSURE

A semiconductor wafer is contained in a reaction tube, and the reaction tube is exhausted through an exhaust pipe while supplying ammonia and dichlorosilane into the reaction tube. A silicon nitride film is deposited on an object to be heat-treated by a reaction of ammonia and dichlorosilane. Subsequently, TEOS is supplied into the reaction tube, while the reaction tube is exhausted through the exhaust pipe. A silicon oxide film is deposited on the object by resolving the TEOS. A semiconductor wafer on which a laminated layer of the silicon nitride film and the silicon oxide film is formed is unloaded from the reaction tube. Then, reactive products attached into the exhaust pipe and the reaction tube are removed, by conducting fluoride hydrogen thereinto, thereby cleaning the pipes. The top end of the exhaust pipe is split into two vents, either one of which is used for discharging exhaust gas for forming films and the other one of which is used for discharging HF gas for cleaning the pipes.

201220-19508001